

ABSTRACT

An optical head includes: a point source producing an excitation beam, optical elements adapted to converge the optical beam into an excitation point located in a subsurface plane relative to the surface of a sample, the plane being perpendicular to the optical axis of the optical head; and elements for scanning the excitation point so as to define an observation field in the subsurface plane along two perpendicular scanning directions, a rapid online scanning and a slow columnar scanning. The invention includes micro-electrical mechanical systems designed to move in translation along a selected displacement at least one of the optical elements, which is mobile along a direction perpendicular to the optical axis so as to obtain at least one of the scanning directions. The invention provides the advantages of maintaining an axial illumination of the sample and of using a miniature head.